

rotating body, and at least one bearing disposed between the rotating body and the housing and adapted to support rotation of the rotating body, the rotary joint being capable of supplying fluids through fluid passages formed inside the rotating body to a polishing table having attached thereto a polishing pad for polishing a substrate, or a holding portion that is adapted to hold the substrate while pressing the substrate against the polishing pad, wherein at least one elastic member is interposed at least either between the rotating body and the at least one bearing or between the housing and the at least one bearing, a groove extending along a rotating direction of the rotating body may be formed in an outer surface of the rotating body at a position which is opposed to the at least one bearing. The at least one elastic member may be an O-ring disposed between the groove and an inner race of the at least one bearing.

[0012]

[0013] According to still another embodiment of the rotary joint, the rotating body may be a shaft extending along the rotating axis. Fluid passages for circulation of the fluids may be formed inside the shaft so as to extend along the rotating axis.

[0014] According to still another embodiment of the rotary joint, fluids including at least pure water may be circulated through the fluid passages. The shaft may be made of resin.

[0015] According to still another embodiment of the rotary joint, the at least one bearing comprises a pair of bearings disposed at opposite end portions of the rotating body. Restricting portions may be formed in the housing, the restricting portions being adapted to abut against the pair of bearings to thereby restrict movement of the pair of bearings towards each other along the rotating axis. The rotary joint may further include a pair of flanges disposed at opposite end portions of the housing and adapted to press the pair of bearings against the restricting portions.

[0016] A polishing apparatus according to another aspect comprises a polishing table having attached thereto a polishing pad for polishing a substrate, a holding portion adapted to hold the substrate while pressing the substrate against the polishing pad, and the rotary joint of any one of the above embodiments, which is adapted to

WHAT IS CLAIMED IS:

1. A rotary joint comprising:
 - a rotating body adapted to rotate on a rotating axis;
 - a housing disposed so as to surround the rotating body; and
 - at least one bearing disposed between the rotating body and the housing and adapted to support rotation of the rotating body,

the rotary joint being capable of supplying fluids through fluid passages formed inside the rotating body to a polishing table having attached thereto a polishing pad for polishing a substrate, or a holding portion that is adapted to hold the substrate while pressing the substrate against the polishing pad, characterized in that

 - at least one elastic member is interposed at least either between the rotating body and the at least one bearing or between the housing and the at least one bearing; and
 - a groove extending along a rotating direction of the rotating body is formed in an outer surface of the rotating body at a position which is opposed to the at least one bearing; and
 - the at least one elastic member is an O-ring disposed between the groove and an inner race of the at least one bearing.
2. The rotary joint according to claim 1, characterized in that
 - the rotating body is a shaft extending along the rotating axis; and
 - fluid passages for circulation of the fluids are formed inside the shaft so as to extend along the rotating axis.
3. The rotary joint according to claim 2, characterized in that
 - fluids including at least pure water are circulated through the fluid passages; and
 - the shaft is made of resin.
4. The rotary joint according to any one of claims 1 to 3, characterized in that
 - the at least one bearing comprises a pair of bearings disposed at opposite end portions of the rotating body;
 - restricting portions are formed in the housing, the restricting portions being

adapted to abut against the pair of bearings to thereby restrict movement of the pair of bearings towards each other along the rotating axis; and

the rotary joint further comprises a pair of flanges disposed at opposite end portions of the housing and adapted to press the pair of bearings against the restricting portions.

5. A polishing apparatus comprising:

a polishing table having attached thereto a polishing pad for polishing a substrate;

a holding portion adapted to hold the substrate while pressing the substrate against the polishing pad; and

the rotary joint of any one of claims 1 to 4, which is adapted to supply fluids to the polishing table or the holding portion.